R. H. DAY

PACIFIC SEABIRD GROUP

BULLETIN

Vol. 3 Summer 1976 No. 1

SHOUT
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PACIFIC SEABIRD GROUP

The Pacific Seabird Group (PSG) was formed in 1972 out of a need for better communication among Pacific seabird researchers. The Group acts to coordinate and stimulate the field activities of its members and to inform its membership and the general public of conservation issues relating to Pacific seabirds and the marine environment. Current activities include the development of standard techniques and reporting forms for colony censusing, pelagic observations, and beached bird surveys. Policy statements are issued on conservation issues of critical importance. While the PSG's primary area of interest is the West Coast of North America and adjacent areas of the Pacific, it is hoped that seabird enthusiasts in other parts of the world will join and participate in the Group. Annual dues for membership in the Group are $5.00 and are payable to the Secretary or Treasurer (addresses on back cover). Members receive the PSG Bulletin.

PACIFIC SEABIRD GROUP BULLETIN

The Pacific Seabird Group Bulletin is issued in the spring or summer and fall of each year and contains news of interest to PSG members. Regional reports include a listing of current research and information on seabird conservation. The Bulletin does not act as an outlet for the results of scientific research but welcomes articles on seabird conservation, seabird research, or other topics that relate to the objectives of the Group. Articles should be submitted to the Editor. Back issues of the Bulletin (starting with spring 1974) are available from the Secretary for $2.50 each.

COMMITTEE COORDINATORS

Pelagic observations:

Gerald A. Sanger
U. S. Fish and Wildlife Service
800 A Street, No. 110
Anchorage, Alaska 99501

Beached bird surveys:

David G. Ainley
Box 8, Alder Road
Bolinas, California 94924

Colony Censusing:

David A. Manuwal
College of Forest Resources
University of Washington
Seattle, Washington 98195

Double-crested Cormorant

PACIFIC SEABIRD GROUP

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VOLUME 3 SUMMER 1976 NUMBER 1

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THE CHAIRMAN's PAGE

Three years ago when PSG was first organized, W. R. P. Bourne told me that if our organization followed the same path as the British Seabird Group, there would be two distinct periods in our early years. There would be an initial period of intense interest when people would be surprised at the number of others with common interests in seabirds. Once the contacts between these people had been made, the group would then need to have well defined goals and programs in order to remain a viable organization. PSG has gone through the first stage and is now entering the period when we will have to guard against becoming stagnant.

I am sorry to say that there are already signs of stagnation! The most serious is the failure of many of our original members to continue to support PSG, now that we are collecting dues. A strong and viable organization depends upon both support through dues payments as well as membership participation.

Much of PSG's success has been due to the growing interest in the marine environment caused by the increase in offshore drilling and tanker traffic resulting from the "energy crisis." (Our timing was so good that our first organizational meeting was held on the first "gasless Sunday" in December of 1973.) The recent wave of funding from the Outer Continental Shelf Energy Program has brought a large number of people into seabird research, and many of them have turned to the PSG to find out what studies on Pacific seabirds are in progress. The group cannot hope to have such good luck in the future. We will have to depend instead on a dedicated and active membership. I urge you to help the PSG by informing your regional representative of any new research or conservation issues in your area so that these can be put into the regional reports. I also urge you to inform me or any council member of ways in which the PSG can better meet its goals and your needs. I urge all of you to encourage others to become members of PSG, and I urge current members to keep their memberships up-to-date.

The 1977 meeting of the group will include a full-day symposium on shorebirds. In the past, PSG meetings have been dominated by papers on gulls and alcids, and it is hoped that this symposium will bring shorebird researchers into the group.

George J. Divoky

Northern Phalarope

I. Business Proceedings of the Second Annual Meeting.

The 1975 meeting of the PSG Executive Council was held at Asilomar, Pacific Grove, California on 11 December 1975. The meeting was called to order at 3:00 p.m. by chairman J. Michael Scott. The general membership participated in this meeting and is invited to continue to do so. The following matters were discussed.

POLICY STATEMENTS - A number of Council members wondered if policy statements were receiving adequate circulation, and it was decided to circulate all distribution lists to each Council member for additions.

Methods of increasing press coverage were also discussed. One member suggested releasing policy statements at annual meetings. This would allow the statements to be released at press conferences, where questions could be fielded by the authors of the statements. Photographs might also enhance the chances of a statement being picked-up by the press.

The Council approved the following procedure for the generation of policy statements:

(1) Possible topics for policy statements should be brought to the attention of a Council member.

(2) The person suggesting the topic, or another appropriate person, will write an informative background statement outlining the issue. If it's a potential problem (such as a proposed lease) the date of possible impact should be included. Every background statement will include the name(s) of those who have agreed to participate in writing the statement, if the Council votes to proceed.

(3) All newly proposed and pending background statements will be sent to members of the Council. Each Council member will rank the statements or state which issues are inappropriate.

(4) Rankings will be sent to the chairman, who will compile the results for the Council. Issues not clearly ranked will be further voted upon by the Council, and the two most pressing issues determined.

(5) The chairman will contact the persons who have offered to write the two statements selected. When the rough draft is completed, it will be forwarded by the chairman to all Council members for review.

(6) When the statement is approved by a majority of the Council members, it will be distributed to all persons and organizations involved, and it will be included in the next issue of the PSG Bulletin.

Possible topics for future policy statements include: (1) OCS and oil development, (2) 200-mile limit, (3) Hawaii bombing range, (4) Alaska Native Claims Settlement Act, (5) Development in Puget Sound, (6) Aquaculture, (7) Beaufort Sea Oil Development, and (8) log rafts in Southeast Alaska. Persons willing to write statements on these and other issues will be contacted, or are urged to contact Chairman Divoky. Policy statements should offer constructive criticism and/or alternatives rather than just pointing out problems. They should include: (1) a statement of the problem, (2) data to show the severity of the problem, and (3) suggested alternatives.

WORKING COMMITTEES AND PROJECTS. Reports were given by committee coordinators:

Pelagic Censusing - Gerald Sanger reported that little progress has been made, but a booklet will be issued in the future.

Colony Censusing - David Manuwal reported that a booklet on techniques will be issued in 1976.

Conservation - Kenton Wohl asked that this committee be abolished since he believed the committee's duties were being accomplished elsewhere in the PSG.

Seabird Journal - James Bartonek suggested a yearly seabird publication containing scientific papers. W. R. P. Bourne has suggested such a publication, and has stated that he believes that with the growing number of seabird groups and interest in seabirds, it would be well-received. The Council approved the idea, but expressed reservations regarding quality control, publication lag time, and financial feasibility. More specifics are needed.

Field Guide Project - Ronald LeValley has approached Council members concerning PSG participation in the publishing of a field guide to eastern Pacific Seabirds. The Council voted not to become involved because of the magnitude of such a project and the chances of a poor-quality end-product without adequate funding.

J. R. Jehl suggested an alternative development of a series of species accounts, written by persons most closely associated with each species. These accounts can be mailed with the PSG Bulletin. Jehl will coordinate the early phases of the project.

DUTIES OF OFFICE HOLDERS - A list of duties had been circulated in October of 1975 to Council members for consideration. These were discussed, amended, and approved. This list is as follows:

Chairman

(1) Oversee all activities of the Group.
(2) Play a central role in the initiation, editing and distribution of PSG policy statements.
(3) Act as official spokesman for the Group.
(4) Designate people to carry out certain tasks not covered by the duties listed for other officers.
(5) Chair the meeting of the Executive Council.
(6) Inform the Executive Council of PSG activities.
(7) Keep abreast of conservation issues and inform council members when appropriate.
(8) Write a Chairman's Page for each PSG Bulletin.

Vice-Chairman

(1) Carry out duties assigned to him by the Chairman.
(2) Act as program chairman for the annual meeting by receiving and editing abstracts and sending abstracts to the Coordinator of Local Committee for inclusion in the program.
(3) Investigate locations for future annual meetings. The Vice-Chairman should come to the council meeting with information on the location for the next meeting and a choice of two or three sites for the meeting to be held in two years.

Secretary

(1) Receive membership applications, requests for Bulletins, etc.
(2) Keep listing of current members on address labels.
(3) Prepare bulk mailings of Bulletins, meeting announcements,etc.
(4) Take minutes at annual council meeting.
(5) Maintain a list of publications and organizations to receive notice of PSG meetings and other activities.
(6) Serve as liaison to Coordinator of Local Committee.

Treasurer

(1) Maintain PSG funds in a financial institution.
(2) Receive receipts from persons authorized to spend PSG money and reimburse them by check.
(3) Complete income tax statement and perform other duties relating to PSG's status as a tax-exempt group.
(4) Prepare a treasurer's report for the annual meeting and Bulletin.
(5) Receive income from dues and sale of Bulletin.

Regional Representatives

(1) Contact seabird researchers in their region at least once a year and report all current research in the regional report.
(2) Keep abreast of marine conservation issues in the region and report at least one of the issues in each regional report. Send newspaper clippings on important conservation issues to the Chairman.
(3). Establish and maintain contact with local conservation groups so that PSG is aware of their activities and they are aware of PSG's.
(4) Keep copies of all correspondence with seabird researchers and conservation groups.

Editor

(1) Contact individuals and organizations concerning potential articles for the Bulletin.
(2) Receive and edit regional reports, articles, bulletin board items, etc.
(3) Produce text for Bulletin, staple in covers and send to Secretary for bulk mailing.

Non-Regional Representatives

(1) Represent the PSG in areas away from the west coast of North America.
(2) Report to the Chairman and the Council on conservation issues and research away from the west coast of North America.

Coordinator of Local Committee

(1) Make arrangements for use of meeting facilities.
(2) Produce a meeting announcement, pre-registration form and call for papers and send to Secretary for mailing.
(3) Form and coordinate Local Committee.
(4) Carry out activities outlined in PSG meeting instructions.
(5) Keep records of all money spent and received and generate a budget statement after meeting.

Working Committee Coordinators

(1) Report to the council the activities and accomplishments of the working group.

Election Committee Coordinator

(1) Receive nominations for council seats.
(2) Mail ballots.
(3) Tabulate ballots and inform council members and the Editor.

MEETINGS - The Council agreed that more question-time was needed after papers at PSG meetings, and that symposia should have narrower topics when possible.

The timing of annual meetings was found to be unsatisfactory to a number of members, and some requested that meetings not always be held in December. The Council recommended that the registration fee for annual meetings be higher in order to bring funds into the treasury. A fee of $5.00 will be the minimum charged. A number of locations for future (after 1976) meetings were discussed, and included LaPaz, Baja, California; San Diego, California; and the Alaska ferry. The 1976 meeting will be held again at Asilomar (see announcement below). Wayne Hoffman will explore these and other possible sites.

TREASURER'S REPORT, 1975

Receipts

Dues	$1548.00
Grant-in-aid from National Audubon	250.00
Contribution from LGL Ltd.	250.00
	$2048.00

Disbursements

Annual meeting expenses	$1030.22
PSG Bulletin	474.46
Office Supplies	77.76
Chairman's expenses	7.80
Miscellaneous	37.60
	$1627.84
Excess of Receipts over Disbursements	420.16
Fund balance at beginning of year	114.02
Fund balance at end of year	$534.18

George J. Divoky

NEW OFFICERS - The following officers were elected for 1976:

Chairman	George J. Divoky
Vice-Chairman	Wayne Hoffman
Secretary	David A. Manuwal
Treasurer	Kees Vermeer

A full list of new Council members is included on the back cover of this issue.

RESOLUTIONS - Four resolutions were adopted at the 1975 meeting:

Appreciation to the Local Committee

Whereas, the Pacific Seabird Groups Second Annual Meeting has to a large measure been a success because of the efforts of the Local Committee.

Now, therefore, be it resolved that the Pacific Seabird Group extends its appreciation to Paul Kelly, Chairman, Stephen Bailey, Alice Berkner, Ted Chandick, Thomas Harvey, Marilyn Kelly, John Luther, David Smith, Vern Yadon, Bob Yutzy, Carol Yutzy, and others for this effort which has reaped benefits to us all.

Marine Sanctuaries

Recognizing that the most critical requirement for the conservation and management of marine birds is the preservation of habitat for breeding, feeding, and resting during migration and,

Recognizing the existing requirements to conserve and manage marine bird resources under the

(1) Convention for the Protection of Nature in the Western Hemisphere
(2) International bilateral agreements and
(3) National Legislation on marine sanctuaries and estuarine protection and,

Recognizing the delays that have occurred in the implementation of measures for habitat protection envisioned by these agreements and laws, the Pacific Seabird Group resolves that;

(1) National governments and their respective sub-jurisdictions should take immediate steps to identify areas presently in need of protection and that
(2) Particular attention should be given to the protection of breeding islands and estuarine feeding areas.
(3) National governments implement the required management to protect identified areas and that
(4) Protection should include control of visitation to protect breeding areas and control of man's activities including waste disposal, recreational activities, and shoreline development.

The 200-mile Limit

Recognizing the need to control the impact of man's activities on the ocean environment and

Recognizing the need for a coordinated approach to the conservation and management of the marine ecosystem and its living resources and

Recognizing the high probability of an extension of national jurisdictions to 200 nautical miles and

Recognizing the past and present focus of national governments individually and through the law of the Sea Conference on fisheries resources,

The Pacific Seabird Group resolves that national governments and the Law of the Sea Conference should recognize that

(1) Seabirds are a resource of national and international value

(2) This resource can be significantly impacted by man's activities on the ocean environment
(3) This resource should be conserved and managed and
(4) This conservation and management should entail both national action for resident species and international actions for highly migratory species

Therefore, the Pacific Seabird Group recommends to the respective national governments of its members Canada, Japan, Mexico, and the United States and to the Law of the Sea Conference that;

(1) Living resource conservation and management in any expanded national jurisdiction explicitly include marine birds
(2) Marine birds in international waters be explicitly recognized as an international resource to be conserved and managed
(3) The Single Negotiating Text of the Law of the Sea Conference be modified to reflect these recommendations.

Alaskan Coastal Management

Whereas, the millions of seabirds inhabiting coastal Alaska are of high esthetic, scientific, subsistence, cultural and ecological value to people of the state, nation, and other countries.

Whereas, many of the coastal habitats of these marine birds are not under permanent protection.

Whereas, human impacts on these habitats are expected to accelerate as a result of resource development and human settlement along Alaska's coast.

Whereas, the Coastal Zone Management Act of 1972 provides an opportunity for the State to develop a coastal management program and implement a State coastal zone management act.

Whereas, such a coastal management act will establish a process whereby Alaskans can effectively influence decisions affecting the outstanding resource values along their coasts.

Therefore, be it resolved that the Pacific Seabird Group urges the State of Alaska to continue to strengthen its coastal management program and to adopt a coastal management plan at the earliest possible time.

Be it further resolved that the Pacific Seabird Group urges the State of Alaska to identify critical seabird habitats in such a plan and to develop the means by which long term protection is provided to these habitats.

II. Items of Interest.

NEXT PSG ANNUAL MEETING - The Pacific Seabird Group will hold its next annual meeting on 6-9 January 1977, at Asilomar, Pacific Grove, California. Members are urged to attend and to participate in the presentation of papers. Meeting announcements and calls for papers will be mailed out to members in early fall. A tentative program will hopefully be published in the next PSG Bulletin.

SHOREBIRD SYMPOSIUM - The next annual meeting of the PSG will include a symposium on shorebirds in marine environments, to be held all day Friday, January 7. It will emphasize shorebird research in marine environments along the Pacific Coast and in Alaska, but reports of studies elsewhere concerned with basic aspects of the biology and conservation of shorebirds will be included. Several contributions already in prospect will deal with the ecology and distribution of migrating and wintering populations. Breeding season information will also be offered if the habitats are littoral or tidal. The program will include several reports on conservation and management of coastal wetland habitats important to shorebirds. We hope to have some review papers, also. One on orientation mechanisms in shorebirds is already in prospect. Arrangements for publication of the symposium are being explored.

The program is being arranged by Frank A. Pitelka, Museum of Vertebrate Zoology, University of California, Berkeley, California 94720. For additional information, or if you have any suggestions, write to him. An advisory committee for program and publication appointed by Chairman Divoky consists of James Bartonek, Joseph Jehl, Frank Pitelka, and himself ex officio.

SOUTHERN AFRICAN SEABIRD GROUP - Another seabird group has been formed in South Africa. PSG members are urged to support this new group, as they are anxious to have overseas members. This group has been stimulated by similar, successful groups such as the British, Pacific, and Australian Seabird Groups. At first, major interest will be devoted to those seabirds (coastal and pelagic) on the southern Africa list. It is not intended to include waders. Four broad fields of work will be emphasized in the early stages: (1) beached-bird census, (2) breeding colong censuses, (3) ocean observations, and (4) awareness. Further information can be had by writing John Cooper, University of Cape Twon, c/o Southern African Seabird Group, Percy Fitzpatrick Institute of African Ornithology, Ronde bosch, SOUTH AFRICA, 7700.

SIMPOSIO BINACIONAL: EL GOLFO DE CALIFORNIA - A symposium on the conservation of flora, fauna, and unique areas of the Gulf of California was held at Bahia de Kino, Sonora, Mexico on 5-6 March 1976. This was one of the first attempts to encourage international awareness for the Gulf of California, and the symposium was jointly sponsored by Instituto Mexicano "Matias Romero" de Estudio Diplomaticos, Universidad de Sonora, University of New Mexico Law School, and American Society of International Law. Political, legal, and biological aspects of Gulf resources were discussed. For those interested, the papers will appear in the July 1976 issue of Natural Resources Journal (Volume 16, Number 3).

ARIZONA SONORA DESERT MUSEUM, MEXICO UNIT - To promote conservation of the fauna and flora of the Sonoran Desert, the ASDM in Tucson, Arizona formed in 1974 a "Mexico Unit" under the direction of Carlos Nagel. Their program includes mostly international promotion of environmental interpretation and natural history education in the Sonora Desert Region. Seabirds of the Gulf of California are included in their interests.

STATUS OF THE SHORT-TAILED ALBATROSS - In a letter to G. A. Sanger dated 16 January 1976, Y. Yamashina (Yamashina Institute for Ornithology, Japan) reports:

> "For Torishima, the party from the N.H.K. (Japan Broadcasting Corporation) had landed on this Island on November 1973, and had counted the adults and subadults of the Short-tailed Albatrosses, the total of which were 62. Then in February 1974, the party from the N.H.K. again had landed on this Island and recorded 11 growing young in the colony. Therefore, it seems that there were 73 short-tailed Albatrosses on Torishima during the season from 1973 to 1974.

On Senkaku-Retto, Professor Sadao Ikehara had found 12 Short-tailed Albatrosses on April 1971, but since then, Taiwan has been asserting the property of these islands, and has been obstructing the approach of the ships of Japan, so we are unable to find out the present status.

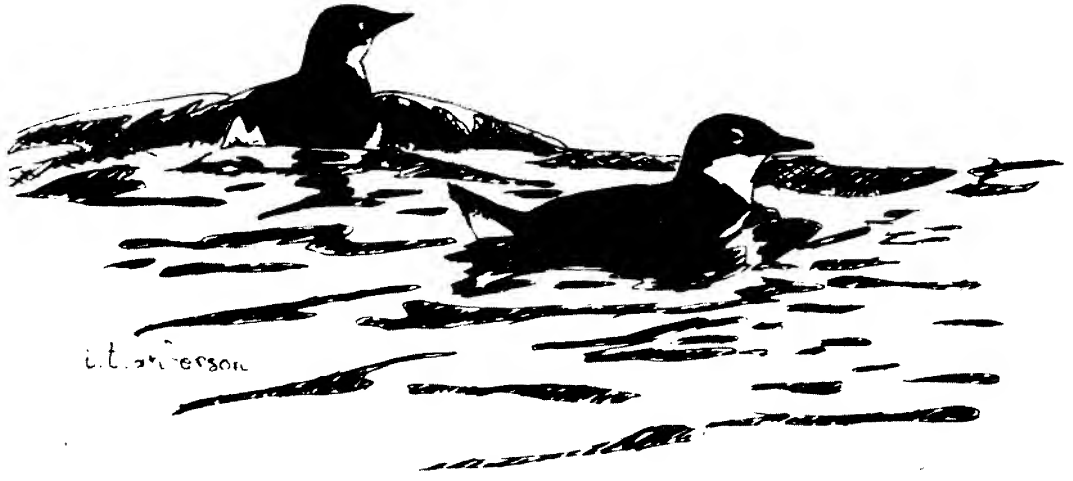
This is all I know about the current status of the Short-tailed Albatross. Please let me know if the Short-tailed Albatrosses are found in the North Pacific areas."

NEW DIRECTOR, POINT REYES BIRD OBSERVATORY - Jane P. Church, formerly the Head Administrator from the Smithsonian's Pacific Project, was appointed the new Director of PRBO in California. She replaces John Smail.

NOMINATIONS FOR REGIONAL REPRESENTATIVES - Nominations are now open for Retional Representatives for Alaska, Washington, Northern California, Mexico, and Hawaii. Duties of these members of the PSG Executive Council are listed in this issue. Those interested in applying, or those knowing of some members willing to serve as representative should send nominations to David Ainley, Box 8, Alder Road, Bolinas, California 94924 before 15 October 1976. This is your chance to become involved.

PSG RESOLUTIONS - Proposed resolutions for each annual meeting should be brought by members to the meeting and presented to the Chairman for consideration by the Executive Council. If you will not be attending the meetings, your suggestions should be mailed to the Chairman beforehand.

NEW CENSUS TECHNIQUES MANUAL - The Canadian Wildlife Service has recently published a booklet entitled "Census Techniques for Seabirds of Arctic and Eastern Canada" (D. N. Nettleship, Ocasional Paper No. 25, Canadian Wildlife Service, Ottawa, 1976). This excellent publication can be obtained by writing the author at CWS, Ontario Region, 2721 Highway 31, Ottawa, Ontario, Canada K1A OH3.



Craveri's Murrelets

I. Alaska

The frenzy of field activity started by the Outer Continental Shelf Energy Program in 1975 is continuing into 1976. A number of new projects have been added to the program and Kotzebue and Norton Sounds are now receiving increased attention.

PELAGIC STUDIES - The U. S. Fish and Wildlife Service has a large study of seabird distribution in all of the seas adjoining Alaska. Specific pelagic studies include a shearwater ecology and behavior study by Guzman and Myres of the University of Calgary; a study of community structure, distribution, and inter-relationships of marine birds in the Gulf of Alaska by Wiens at Oregon State University; Divoky of Alaska Fish and Game is studying the relationships of birds to the pack ice.

BREEDING COLONY STUDIES - USFWS has personnel at a number of colonies gathering information on breeding biology. Hickey and Craighead of the University of Wisconsin are censusing seabirds breeding on St. George Island. Hunt of UC, Irvine is conducting baseline studies of Pribilof Island seabirds. The evolution and pathobiology of the Gulf of Alaska Herring Gull group is being studied by Patten of The Johns Hopkins University. Drury of College of the Atlantic is studying the colonial seabirds on the south side of Seward Peninsula and King and St. Lawrence Islands. Roseneau of Renewable Resources is studying the bird colonies at Capes Thompson and Lisburne.

COASTAL AND SHOREBIRD STUDIES - Shields and Peyton of the University of Alaska are studying the birds on the south side of the Seward Peninsula. Michelson and Schamel are studying the waterfowl and shorebirds in the area of Cape Espenberg in Kotzebue Sound. Shorebirds in Arctic littoral habitats are being studied by Connors of Bodega Marine Laboratory. Senner of the Alaska Cooperative Wildlife Research Unit at the University of Alaska is studying the food habits of migrating Dunlins and Western Sandpipers in the Copper River Delta. Arneson and Divoky of Alaska Fish and Game are mapping the coastal habitat throughout the state.

Studies are continuing in the Aleutian Island National Wildlife Refuge under Byrd. These include work on colonial species on Buldir Island as well as census work in other parts of the refuge.

George J. Divoky
Regional Representative
Alaska

II. British Columbia.

CURRENT RESEARCH - Various projects are listed below:

(1) A Ph.D. study on Black Oystercatchers on Cleland Island, West Vancouver Island, British Columbia is in its third year of a four-year program. The study is undertaken by Sarah Groves.

(2) A Master's study on crow predation of Pelagic Cormorants has been initiated this year by Robert Butler on Mittlenatch Island, Strait of Georgia, British Columbia.

(3) Some aspects of the biology of Glaucous-winged Gulls, Strait of Georgia are being studied by a master's student under supervision of Jamie Smith.

(4) A transmountain pipeline, to transport oil from Kitimat, British Columbia to Edmonton, Alberta has been proposed. A pipeline terminal may be built at Kitimat. The terminal will receive tankers from Valdez, Alaska. Oil will be transported to Juan de Fuca Strait, regardless whether oil will be transported to Kitimat. Because of the potential oil threat to seabirds nesting in the Queen Charlotte Islands and to birds at sea at the approaches of the proposed pipeline terminal at Kitimat, a pilot program is presently being initiated concerning itself with the collection of baseline information on seabird colonies along the west coast of the Queen Charlotte Islands. An inventory is also planned this fall and winter on numbers, species, and distribution of birds at sea in inlets and estuaries near Kitimat. Project leader of the above investigations is K. Vermeer, Canadian Wildlife Service.

(5) A study has been initiated this summer on Rhinoceros Auklets and Tufted Puffins on Triangle Island, situated at the northwest end of Vancouver Island, British Columbia. The study will concern itself with inventories on breeding numbers of those species, their breeding chronology, reproductive success and nesting habitat preferences. Triangle Island has the largest Tufted Puffin and Cassin Auklet breeding colonies in British Columbia. Project leader is K. Vermeer, Canadian Wildlife Service.

(6) A cooperate inventory on Double-crested Cormorant colonies is being conducted in British Columbia and Washington State. D. A. Manuwal, J. B. Foster, R. W. Campbell, and G. Hocutt are some of the investigators.

(7) A wall map of seabird colonies of Vancouver Island and vicinity will be published in September of 1976. The Compiler is R. W. Campbell.

(8) The Canadian Environmental Protection Service produces an "oil counter measures map series" showing a. o. bird concentrations at sea along the British Columbia coast. The maps are valuable, as the title indicates, in determining where seabirds will be most at hazard from potential oil spills. Project leader is I. R. Robertson, Environmental Protection Service.

(9) R. H. Drent, R. W. Campbell, and C. J. Guiguet are in the process of writing a book on the seabirds of British Columbia which will replace an older existing catalogue on the subject, entitled: "A catalogue of British Columbia seabird colonies" by R. H. Drent and C. J. Guiguet, British Columbia Provincial Museum, Occasional Papers 12:1-73, 1961. The new catalogue will also be published by the Museum in the Occasional Paper series and is expected to be published by September 1976.

ITEMS OF INTEREST

(1) A new region or division of the Canadian Wildlife Service has been established on the Canadian West Coast since April 1, 1976. The new region encompasses British Columbia and the Yukon. The regional Canadian Wildlife Service headquarters is at 5421 Robertson Road, Delta, British Columbia. The director is Mr. Gordon Staines.

(2) An Institute of Ocean Sciences of the Canadian Department of the Environment is presently being built at Patricia Bay, a 25-minute automobile drive from Victoria, Vancouver Island. The new research centre for marine sciences is expected to be in full operation by late 1977.

(3) Two coastal pelagic voyages, lasting two weeks each, were made on the west coast of Vancouver Island January and November, 1975. Michael Sheppard was in charge of those excursions.

(4) A 3-week course dealing specifically with seabirds will be taught from August 16 to September 4, 1976 at Bamfield Marine Station, a new marine laboratory on the west coast of Vancouver Island. Instructors are S. C. Sealy and R. W. Campbell.

(5) Canadian External Affairs Minister, A.MacEachen announced June 4, 1976, that Canada will unilaterally extend its fisheries jurisdiction to 200 miles on January 1, 1977. The United States will extend its limits next March 1 and Mexico has already extended the limit.

Kees Vermeer
Regional Representative
British Columbia

III. Washington. No report received.

David A. Manuwal
Regional Representative
Washington

IV. Oregon. No report received.

Wayne Hoffman
Regional Representative
Oregon

V. Northern California.

CURRENT RESEARCH - Items of current research are listed below:

(1) Offshore Surveys: Programs in central, northcentral and northern California (California Department of Fish and Game and California State University, San Jose; Point Reyes Bird Observatory; and California State University, Humboldt, respectively) remain as described in Bull. 2(2).

(2) Coastal and Estuarine Surveys: Studies in central California (Point Reyes Bird Observatory) and Humboldt Bay (U. S. Fish and Wildlife Service) continue, as described in the previous Bulletin. Morro Coast Audubon Society, in conjunction with California Department of Fish and Game, has been conducting regular censuses of birds in Estero Bay, southcentral California.

(3) Beached Bird Surveys: The Point Reyes Bird Observatory project has continued to expand and now includes about 60 beaches, regularly censused, between Cape Mendocino and San Diego. With the help of Chevron Research, Incorporated, the data are now being computerized and programs for their analysis are being formed.

(4) Pollutants in Marine Ecosystems: In addition to work described in the previous report (Bodega Marine Laboratories; Department of Wildlife and Fisheries Biology, U. C. Davis), Richard Grau and Tom Roudybush (Department of Avian Sciences, U. C. Davis) in cooperation with Point Reyes Bird Observatory are initiating work on the effects of oil ingestation on reproduction in seabirds.

(5) Trophic Relationships: Work continues as described earlier (Moss Landing Marine Laboratories; Point Reyes Bird Observatory; Department of Wildlife and Fisheries Biology, U. C. Davis; California Department of Fish and Game).

(6) Behavior: Douglas Nelson (University of Michigan) has begun a study of the behavioral taxonomy of alcids, working principally at the Farallon Islands. Point Reyes Bird Observatory has begun an analysis of Black Oystercatcher feeding behavior. Judith Hand (University of California, Los Angeles) has yet to finish her work on vocalizations of Western Gulls.

(7) Taxonomy and Morphology: G. Victor Morejohn (California State University, San Jose) continues his work on the fossil marine avifauna of the central California region. Barbara Margolis (CSU, San Francisco) has been studying the musculature of alcids. Diane Mathieson (CSU, San Jose) is analyzing the bird material found in Indian middens of coastal central California.

(8) Breeding Biology and Ecology: Point Reyes Bird Observatory continues their work on the twelve seabird species breeding at the Farallon Islands. Intensive observations on known-age populations of Brandt's Cormorants and Western Gulls have begun.

(9) R. H. Drent, R. W. Campbell, and C. J. Guiguet are in the process of writing a book on the seabirds of British Columbia which will replace an older existing catalogue on the subject, entitled: "A catalogue of British Columbia seabird colonies" by R. H. Drent and C. J. Guiguet, British Columbia Provincial Museum, Occasional Papers 12:1-73, 1961. The new catalogue will also be published by the Museum in the Occasional Paper series and is expected to be published by September 1976.

ITEMS OF INTEREST

(1) A new region or division of the Canadian Wildlife Service has been established on the Canadian West Coast since April 1, 1976. The new region encompasses British Columbia and the Yukon. The regional Canadian Wildlife Service headquarters is at 5421 Robertson Road, Delta, British Columbia. The director is Mr. Gordon Staines.

(2) An Institute of Ocean Sciences of the Canadian Department of the Environment is presently being built at Patricia Bay, a 25-minute automobile drive from Victoria, Vancouver Island. The new research centre for marine sciences is expected to be in full operation by late 1977.

(3) Two coastal pelagic voyages, lasting two weeks each, were made on the west coast of Vancouver Island January and November, 1975. Michael Sheppard was in charge of those excursions.

(4) A 3-week course dealing specifically with seabirds will be taught from August 16 to September 4, 1976 at Bamfield Marine Station, a new marine laboratory on the west coast of Vancouver Island. Instructors are S. C. Sealy and R. W. Campbell.

(5) Canadian External Affairs Minister, A.MacEachen announced June 4, 1976, that Canada will unilaterally extend its fisheries jurisdiction to 200 miles on January 1, 1977. The United States will extend its limits next March 1 and Mexico has already extended the limit.

Kees Vermeer
Regional Representative
British Columbia

III. Washington. No report received.

David A. Manuwal
Regional Representative
Washington

IV. Oregon. No report received.

Wayne Hoffman
Regional Representative
Oregon

V. Northern California.

CURRENT RESEARCH - Items of current research are listed below:

(1) Offshore Surveys: Programs in central, northcentral and northern California (California Department of Fish and Game and California State University, San Jose; Point Reyes Bird Observatory; and California State University, Humboldt, respectively) remain as described in Bull. 2(2).

(2) Coastal and Estuarine Surveys: Studies in central California (Point Reyes Bird Observatory) and Humboldt Bay (U. S. Fish and Wildlife Service) continue, as described in the previous Bulletin. Morro Coast Audubon Society, in conjunction with California Department of Fish and Game, has been conducting regular censuses of birds in Estero Bay, southcentral California.

(3) Beached Bird Surveys: The Point Reyes Bird Observatory project has continued to expand and now includes about 60 beaches, regularly censused, between Cape Mendocino and San Diego. With the help of Chevron Research, Incorporated, the data are now being computerized and programs for their analysis are being formed.

(4) Pollutants in Marine Ecosystems: In addition to work described in the previous report (Bodega Marine Laboratories; Department of Wildlife and Fisheries Biology, U. C. Davis), Richard Grau and Tom Roudybush (Department of Avian Sciences, U. C. Davis) in cooperation with Point Reyes Bird Observatory are initiating work on the effects of oil ingestation on reproduction in seabirds.

(5) Trophic Relationships: Work continues as described earlier (Moss Landing Marine Laboratories; Point Reyes Bird Observatory; Department of Wildlife and Fisheries Biology, U. C. Davis; California Department of Fish and Game).

(6) Behavior: Douglas Nelson (University of Michigan) has begun a study of the behavioral taxonomy of alcids, working principally at the Farallon Islands. Point Reyes Bird Observatory has begun an analysis of Black Oystercatcher feeding behavior. Judith Hand (University of California, Los Angeles) has yet to finish her work on vocalizations of Western Gulls.

(7) Taxonomy and Morphology: G. Victor Morejohn (California State University, San Jose) continues his work on the fossil marine avifauna of the central California region. Barbara Margolis (CSU, San Francisco) has been studying the musculature of alcids. Diane Mathieson (CSU, San Jose) is analyzing the bird material found in Indian middens of coastal central California.

(8) Breeding Biology and Ecology: Point Reyes Bird Observatory continues their work on the twelve seabird species breeding at the Farallon Islands. Intensive observations on known-age populations of Brandt's Cormorants and Western Gulls have begun.

CONSERVATION NOTES - The proportion of oiled seabirds found on California beaches in 1975 remained at the 18-19 percent level reported for 1974, but 1975 data did not include several hundred birds oiled in spills off San Mateo County (Point Reyes Bird Observatory).

David G. Ainley
Regional Representative
Northern California

VI. Southern California. No report received.

Joseph R. Jehl, Jr.
Regional Representative
Southern California

VII. Mexico. No report received.

Bernardo Villa-Ramirez
Regional Representative
Mexico

VIII. Hawaii.

CURRENT RESEARCH - Recent research on Hawaiian seabirds has been limited, for the most part, to long-standing projects, such as the National Park Service population studies in the Dark-rumped Petral Colony in Halaeakala National Park. Fred Zeillemaker, of the U. S. Fish and Wildlife Service, has also been recording population data on several seabird species at the Kilauea Lighthouse on Kauai. The only permit issued for research on the offshore islands in recent months involves a study of influenza virus transmission in seabirds by Dr. Alan Granoff visiting professor at the University of Hawaii. The study originates from his home institution, Saint Jude Childrens Research Hospital in Memphis, Tennessee. He and his staff sampled Sooty Terns, Noddies, Shearwaters, Boobies, and petrels in an attempt to identify as many different strains of virus as possible. He hypothesizes that frequent changes in human influenza that cannot be explained by mutation are possibly the result of new strains transmitted from birds, particularly migratory species. He hopes to identify several avian strains, and will probably sample albatrosses at Midway next year.

CONSERVATION NOTES - Three issues of significance to seabird conservation in Hawaii are now being debated. The state Division of Fish and Game has recently issued a proposed revised regulation (REG 7) for public comment that would establish the "Hawaii State Seabird Sanctuary." Several offshore islets in the Main Islands are nesting sites for as many as 15 species of seabirds, but only a few are currently well protected by law. This revised regulation would expand protection to 37 "State owned or controlled islands, islets and rocks." There are many restrictions in the proposed regulation, but the most controversial one is the prohibition of camping on these islets. A few have been used for years by fishermen and weekend campers, but the tremendous increase in use, and resultant disturbance to birds, has prompted this regulation change. The issue is now being debated at public hearings and will probably be decided during the summer.

As in the past, permit applications for scientific and educational use of the sanctuary islets will be reviewed by the Board of Land and Natural Resources. It appears that research work will be encouraged where compatible with the wildlife conservation objectives.

Another issue, still very much undecided, is the fate of the current boundary dispute in the Hawaiian Islands National Wildlife Refuge (Leeward Isles). The congressional decision regarding wilderness designation for this area is still held up by the boundary dispute. State and Federal officials are still not in agreement regarding the advisability of commercial fishing within inshore waters of the Refuge. It now appears that the dispute will lead to a joint research program to investigate the potential for commercial fishing in the Refuge and the impact of fishing on other resources. It is expected that National Marine Fisheries will also be involved. A preliminary trip was taken into the Refuge during May 1976, to begin planning for a more comprehensive study.

An issue of indirect significance to Hawaiian seabirds involves current dispute regarding the return of Kahoolawe Island to the State. The island has been used as a military bombing target for many years, and military officials are protesting its return to the State on the grounds that targets such as Kahoolawe are critical to combat training. Kahoolawe itself is of little significance to seabirds, but Kaula Island, near Niihau, is very important as a nesting site. A portion of this island has also been utilized as a bombing site in recent years, and biologists are concerned that a return of Kahoolawe to the State under tremendous public pressure would then lead to intensified military use of Kaula Island, as an alternative. The impact of expanded bombing on Kaula could be serious, and the issue is being watched closely by conservationists in the State.

ITEMS OF INTEREST

(1) Members of the Hawaii Audubon Society are producing a cassette/record of Hawaiian birds, including seabirds, and would like to know of persons who have high quality sound recordings of these species, that would permit use of their tapes for this production. Wherever possible, we would like to have information about sound equipment, conditions of recording and bird behavior. Anyone interested in contributing to this endeavor, please contact Dr. Robert Shallenberger, c/o Ahuimanu Productions, P. O. Box 1166, Kailua, HI 96734.

(2) A revised edition of the field guide, "Hawaii's Birds," prepared by the Hawaii Audubon Society, is now available for mail order sale. This full color guide has just been updated, and sells for $3. Orders should be sent to the HAS, P. O. Box 5032, Honolulu, HI 96814.

Robert J. Shallenberger
Regional Representative
Hawaii

IX. Nonregional Reports

CURRENT RESEARCH (JAPAN) - All the studies listed below are being conducted through Hokkaido University in Hakodate, Hokkaido, Japan:

(1) Morphology and feeding ecology of alcids are being studied from 3 June to 10 August 1976 in the Bering Sea by the RV Habomai Maru No. 21. Principal Investigator: H. Ogi.

(2) Heavy metal concentrations (Cd, Zn) in seabirds of the Bering Sea. Principal Investigator: T. Hamanaka.

(3) Relationship between seabird distribution and neuston in the northern North Pacific. Principal Investigators: M. Kamba and H. Ogi.

Harou Ogi
Regional Representative
At-Large

CURRENT RESEARCH (CENTRAL-SOUTHERN ATLANTIC COAST) - An opportunity has developed to census the seabirds on the continental shelf waters in cooperation with oceanographic work of the National Marine Fisheries. This has grown out of the NOAA environmental assessment program for the Gulf of Maine. Hopefully these studies will bring our knowledge of the numbers distribution and movements of seabirds up to the level achieved by the Canadians.

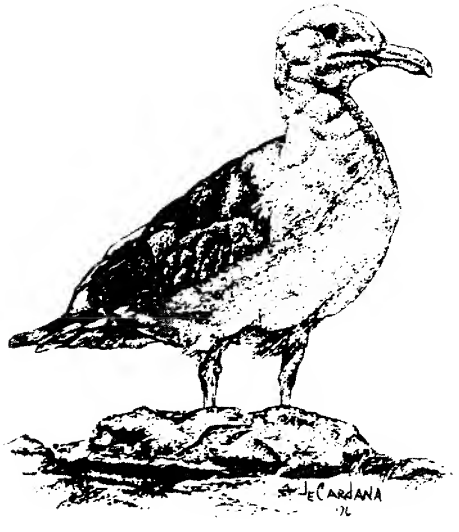
The Fish and Wildlife Service, cooperating with a number of local groups, is continuing the program begun in 1975 to define the distribution of and to census colonial wading birds from Maine to Florida. This year the program has been expanded to include censusing of colonial seabirds by personnel of the Cooperative Wildlife Research Units.

The Fish and Wildlife Service's Patuxent group in continuing detailed studies of colonial nesting wading birds as potential indicators of industrial pollution. This work includes cooperators from several conservation organizations, colleges, and universities.

The National Audubon Society Staff is continuing its long-term study of Wood Storks looking forward to formulating a management program.

The Cornell University Laboratory of Ornithology is gathering data on present and historical distributions and numbers of wading species. These data will be entered into a computer archive - The Colonial Bird Register.

William H. Drury
Regional Representative
At-Large



Yellow-footed Western Gull

ABSTRACTS OF PAPERS GIVEN: 1975 ANNUAL MEETING

I. Symposium, Seabird Conservation Problems on the California Coasts; Daniel W. Anderson, Chairman; 8:10-12:00 am, 12 December.

OIL AND CALIFORNIA SEABIRDS: PAST, PRESENT, AND FUTURE

John Smail
Point Reyes Bird Observatory, Bolinas, California

Abstract: In recent years the California coast has witnessed at least three major oil pollution incidents resulting in damage to seabirds. This problem is at least 70 years old and the eyecatching drama of the larger episodes tends to obscure the constant attrition from day-to-day pollution.

This paper examines the loss to seabirds from major and minor incidents in California, draws a profile of the oil-vulnerable species, and evaluates the potential danger from future oil installations and tanker traffic along the California Coast. It draws from the experience of the Point Reyes Bird Observatory's Beached Bird Census which was begun after the 1971 San Francisco oilspill and has developed into a statewide operation.

PROTECTION AND MANAGEMENT OF THE CALIFORNIA LEAST TERN: ENDANGERED SPECIES RECOVERY TEAM APPROACH

Ronald Jurek
California Least Tern Recovery Team, California Department of Fish and Game, Sacramento, California

Abstract: The Endangered Species Act of 1973 directs the Secretary of the Interior and the Secretary of Commerce, in cooperation with the United States and other Federal entities, to carry out a national program for the conservation of species of fish, wildlife and plants facing extinction. Regional directors within the U. S. Fish and Wildlife Service, the lead agency in this conservation effort, have appointed recovery teams to prepare, coordinate, and implement plans for endangered species restoration programs.

The California Least Tern (Sterna albifrons browni) Recovery Team was formally appointed in April 1975. The team comprises seven biologists from Federal, State, County and academic affiliations. All members are experienced in Least Tern research and management. This team coordinated nest site enhancement and protection for the 1975 tern breeding season and coordinated a breeding population survey.

The team is charged with the task of preparing a California Least Tern Recovery Plan. This plan will serve as a guide for an orderly approach in preserving this endangered bird. A Recovery Plan is a formal presentation of the problem; it sets management goals and provides a list of necessary actions and a timetable for completing them. A recovery plan for the Least Tern will be maintained and updated yearly until complete recovery has been achieved and this subspecies is returned to nonendangered status.

BLM BASELINE STUDIES IN EVALUATING IMPACT OF OCS DEVELOPMENT IN SOUTHERN CALIFORNIA

Herb Hyatt
Bureau of Land Management, Los Angeles, California

Abstract: The Bureau of Land Management's involvement in the marine environment has come about with the requirement to obtain information regarding the existing environment of the outer continental shelf (OCS). The need for this information has a high prioity at the present time due to the increased emphasis on extraction of petroleum resources from the country's OCS areas. In general, the information collected fulfills three basic requirements: 1) it provides input data for the environmental assessment required by the National Environmental Policy Act of 1969, 2) it provides information that may modify the offshore leasing program in order to protect the environment, and 3) it provides information to be used in the decision-making processes with respect to tract selection, tract leasing, and special tract-use stipulations.

The Environmental Studies Program of BLM has been designed to insure that environmental studies are conducted to provide the information required before OCS development occurs. The Environmental Studies Program initiates up to four phases of data acquisition over the period of pre-drilling to oil-field depletion. The first phase consists of a summary of OCS environmental knowledge, which assembles all known and pertinent OCS information. This process allows a determination on existing data gaps to be made. The second phase is the baseline sampling which establishes an environmental benchmark, thus allowing detection of changes which may occur in the future. Primary emphasis is placed on the chemical indices (hydrocarbons and tract metals). The third phase is termed special studies, which includes study programs which are important to the program. Examples of special studies might include toxicity studies, or pollutant trajectory models. The fourth phase is the monitoring study which allows the detection of environmental changes relative to the benchmark data of phase two.

In southern California, phase one has been completed, and phase two is currently in progress. In addition, a special study (which augments the phase two data) is also being completed. The study is designed to determine the location and abundance of marine mammals and sea birds around the Channel Islands. Phases one and two are expected to begin off central and northern California, and Oregon and Washington within one year.

SEABIRD CONSERVATION PROBLEMS IN MEXICO, EMPHASIZING RASA ISLAND

Bernardo Villa-Ramirez
Universidad Nacional Autonoma,
Instituto Biologia, Laboratorio de Mastazoologia,
Mexico City, Mexico

Abstract: None submitted.

HUMAN IMPACT ON SEABIRDS OFF BAJA, CALIFORNIA: AN INTERNATIONAL CONSERVATION PROBLEM

Daniel W. Anderson
U.S. Fish and Wildlife Service, Davis, California

Abstract: Judging mainly from studies on Brown Pelicans (Pelecanus occidentalis) and Heermann's Gulls (Larus heermanni), disturbances by tourists, fishermen, and scientists can be seriously disruptive to breeding seabirds in colonies off Baja, California. The problems of human disruptive are far from unique off Baja, California, and similar cases are documented throughout the world. The increasing human-seabird contacts in the waters of the Gulf of California and West Coast of Baja, California however, raise serious questions and immediate concern for the future preservation of nesting colonies in that area. The Pacific Seabird Group has already expressed a position of concern on this issue, and here I want to renew this concern by presenting more data on the problem and its potential effects.

California Brown Pelican

II. General Papers Session; Paul R. Kelly, Chairman;
1:30 - 5:10 p.m., 12 December

SEXUAL AND GEOGRAPHIC VARIATIONS IN BODY WEIGHT, CULMEN LENGTH, WING LENGTH, AND TARSUS LENGTH FOR COMMON MURRES IN THE BERING SEA

Haruo Ogi and Tokimi Tsujita
Research Institute of North Pacific Fisheries,
Faculty of Fisheries, Hokkaido University,
Hakodate, Hokkaido, Japan

Abstract: Morphological measurements were made on body weight, culmen, wing, and tarsal length of the Common Murre (Uria aalge). All these structures are essential for foraging behavior. A total of 636 Common Murres that were captured accidentally with gill-netted Pacific Salmon in the Bering Sea in 1973 were examined in this study. Murres were taken at 43 of 71 sampling stations. Common Murres were sampled mainly on the continental shelf and adjacent areas and not from the central part of the Bering Sea.

The results obtained are summarized as follows:

1. There was no significant difference in mean body weight between males and females. There was no sexual dimorphism in body weight at each sampling station. But the differences in the mean body weight were significant between stations. There was a general decrease in body weight at the sampling stations from north to south. There was sexual dimorphism in culmen length, but no geographical variation.

2. Neither sexual dimorphism nor geographic variation were found in wing length or tarsus length.

FOOD HABITS AND FOOD NICHE OVERLAP OF PISCIVOROUS MARINE BIRDS WINTERING ON MONTEREY BAY, CALIFORNIA

Donald M. Baltz
Graduate Group in Ecology,
University of California, Davis California

G. Victor Morejohn
Marine Laboratories,
Moss Landing California

Abstract: The stomach contents of 164 birds belonging to 17 species were examined. Commercially important species of fish and squid were found to be dominant items in the diets of most of the predator species. The Northern Anchovy (Engraulis mordax) and the Market Squid (Loligo opalescens) were preyed upon by all but two of the predator species studied. Measures of food niche overlap ($\hat{C}\lambda$) ranged from a low of 0.0041 to a high of 0.9689. High values of food niche overlap were mitigated by spatial and temporal segregation of congenerics. Low values of overlap between congenerics were related to predator size and trophic level. Intermediate values of food niche overlap were found between species which were not segregated by time, space, or trophic level.

FORAGING AND BREEDING ADAPTATIONS TO DIFFERENT FOOD REGIMES AMONG THREE SEABIRDS: THE ROYAL TERN, COMMON TERN, AND BLACK SKIMMER

R. Michael Erwin
Department of Zoology, University of Maryland,
College Park, Maryland
(Present Address: Massachusetts Cooperative Wildlife Research Unit,
University of Massachusetts, Amherst, Massachusetts)

Abstract: Aspects of the foraging and breeding ecology of the Royal Tern (Sterna (Thalasseus) maxima), Common Tern (S. hirundo), and Black Skimmer (Rynchops niger) were compared in light of the food resource. Field studies conducted in 1973 and 1974 on two Virginia barrier islands revealed species differences in foraging range and habitat use, flocking tendencies, and colony structure and distribution. These behavioral and ecological differences were examined in relation to different regimes of food predictability.

Analyses of inshore (<1.5 km) and offshore (>3.0 km) fish collections were conducted for several areas along the Delaware-Virginia coast. Spatial variability (between-sampling site) in fish abundance is much greater in offshore than inshore waters, indicating greater "patchiness" of fish.

In relation to this food distribution, the more "offshore"-feeding Royal Terns (1) foraged both solitarily and in flocks over surfacing fish, and (2) were the most "colonial" of the three species in regard to nest density, colony size, and colony distribution along the coast. In contrast, the strictly inshore-feeding Black Skimmer showed no flocking tendency and, in general, had smaller, more diffuse breeding colonies. Common Terns, which foraged both inshore and offshore, were intermediate in the 'degree of coloniality'. The suggestion by Horn (1968), Ward and Zahavi (1973) and Emlen (1975) concerning the advantages of food-finding among colonial birds are discussed in relation to the results.

ANTI-PREDATOR DEFENSE IN TWO SPECIES OF CORMORANT

Sherman Douglas Causey
Dept. of Ecological and Environmental Biology, University of California, Irvine, California

Abstract: The anti-predator defense of the Double-crested Cormorant (Phalacrocorax auritus) and the Pelagic Cormorant (P. pelagicus) was observed on Mandarte Island, British Columbia, Canada. Approximately 500 Double-crested Cormorant nests and 150 Pelagic Cormorant nests were watched from 1 April to 1 August for a total of 250 hours of observation. The absolute location of nests on the island and the relative location of nests to each other were measured, as were nest dimensions, habitat parameters, and intrusions into the cormorant colonies by the Glaucous-winged Gull (Larus glaucescens) and the North-Western Crow (Corvus caurina). Preliminary results indicate that cormorants nesting in the colony positions that receive the highest frequency of predator intrusions are the most aggressive in that colony. Defense aggression in the cormorant colonies seems to be directly related to the frequency of intrusions, regardless of the predator or the mode of intrusion.

NESTING ECOLOGY OF THE ARCTIC LOON

Margaret R. Petersen
Division of Wildlife and Fisheries Biology, University of California, Davis, California

Abstract: Reproductive success of the Arctic Loon (Gavia arctica pacifica L.) was studied on the delta of the Yukon-Kuskokwim Rivers, Alaska in 1974 and 1975. Snow and ice melt was earlier than normal in 1974 and later than normal in 1975, and resulted in differences in dates of arrival of loons on ponds and in nest initiation. The numbers of nesting pairs and proportions hatching eggs varied markedly between years. Nesting pairs increased from 18 in 1974 to 59 in 1975. Nesting failure was substantial (94.4% in 1974 and 67.2% in 1975). Egg loss was attributed primarily to Red Fox (Vulpes fulva), jaegers (Stercorarius spp.), and Glaucous Gulls (Larus hyperboreus). Predation peaked immediately after the hatch of goose nests which had served as a major source of eggs for those predators. Only the earliest initiated loon nests were successful and those hatched at the time of last hatching of goose nests; all others were destroyed. Selection for island nest sites was an important factor in hatching success in 1975. 61.1% of the nests that hatched were island nests. These comprised only 36.2% of the total nests.

RESTORATION PROGRAM FOR ENDANGERED ALEUTIAN CANADA GEESE

G. V. Byrd
U.S. Fish and Wildlife Service, Adak, Alaska

P. F. Springer
U.S. Fish and Wildlife Service, Arcata, California

Abstract: Aleutian Canada Geese (Branta canadensis leucopareia) once nested in the Aleutian Islands, Alaska and in the Commander and Kurile Islands of the Soviet Union. Predation by Arctic Foxes (Alopex lagopus) introduced to the breeding islands was primarily responsible for reducing the bird to a single breeding population of approximately 800 birds.

The program to restore the bird to a safer level is discussed. The project includes a study of the breeding population of geese on Buldir Island, Alaska, the remote volcano where the geese still breed; captive propogation of geese; removal of introduced predators from selected islands and release of captive-raised birds; determination of migration routes and wintering areas and the study of geese in migration and wintering areas.

A summary of the results of studies to date is given and plans for the future are discussed.

THE SPRING BIRD MIGRATION AT PT. BARROW

Warren L. Flock
University of Colorado, Boulder, Colorado

Abstract: Previous radar studies of bird migration at Pt. Barrow did not provide good coverage of the spring migration, but this deficiency was largely remedied in the spring of 1974. Two types of migration are depicted by the radar record. Some species, especially eiders presumably, follow along the edge of the shorefast ice to the northeast from Pt. Barrow. Other species overfly the area without following the shoreline or edge of the shorefast ice very closely. A complication is that normal spring migration is to the east for some birds and to the west for others, each of these two groups tending to move when winds are favorable.

SEABIRDS OF THE NORTON SOUND AREA OF ALASKA

William H. Drury
Joint Scientific Staff, Massachusetts and National Audubon Societies

Abstract: The species of seabirds in the Norton Sound area contrast with that of the rest of the northern Bering Sea both in the predominance of Common Murres (Uria aalge) over Thick-billed Murres (Uria lomvia) and in the absence of Auklets. The contrast exists even between Sledge Island and King Island which are within sight of each other.

Differences in the physical characteristics of the breeding sites available do not seem to explain the sharp contrast. Some speculations are made about the characteristics of water masses which may be relevant.

A possible technique is described for measuring breeding success in Kittiwakes (Rissa sp.) from a small airplane. If effective, this may supply an efficient bio-assay for monitoring the "health" of a seabird colony.

OBSERVATIONS ON SEABIRD DENSITIES IN THE NORTHWESTERN PACIFIC OCEAN AND THE BERING SEA IN JUNE 1975

Terence R. Wahl
Bellingham, Washington

Abstract: Seabirds were observed on 127 transect periods of 15-60 minutes on a research/training cruise from Hokkaido to the Bering Sea and Kodiak.

Records of species and numbers within a set transect width, sea surface temperature, salinity and other environmental conditions were acquired and relationships of species and densities in the sub-artic convergence, the central north Pacific and the pelagic waters of the south central Bering Sea studied.

Some comparisons of records from this cruise and published records of other cruises in the general north Pacific area and comments on the distribution of various pelagic species are offered.

INFLUENZA VIRUS INFECTIONS IN ALASKAN SEABIRDS

B. C. Easterday, Susan J. Hyland and Jeanne A. Alexander
Department of Veterinary Science, University of Wisconsin,
Madison, Wisconsin

Abstract: Seventeen species of birds, mostly seabirds, were examined for the presence of influenza viruses and/or influenza virus antibodies in the summer of 1975 on St. Paul Island and at Point Barrow. Both live trapped and dead birds were examined. Type A influenza viruses were recovered from 4 species. Soviet collaborators have reported similar results in the western Pacific and Bering Sea. The significance of the finding in the ecology of influenza viruses is discussed.

Blue-footed Boobies

III. Symposium, Marine Charadriiformes; Joseph R. Jehl, Jr., Chairman, 8:10 - 12:00 a.m., 13 December

SYMPATRY AND INTERBREEDING OF HERRING & GLAUCOUS-WINGED GULLS IN SOUTHERN ALASKA

Samuel M. Patten, Jr.
Section of Ecology and Comparative Behavior, Dept. of Pathobiology, School of Hygiene and Public Health, The John Hopkins University, Baltimore, Maryland

Abstract: The Glaucous-winged Gull (Larus glaucescens) which breeds along the coast from Washington to the Aleutians, is quite closely related to the Herring Gull (Larus argentatus) which is a common and widely distributed species at the southern periphery of its coastal breeding range at Glacier Bay, Alaska. The Herring Gull replaces the Glaucous-winged Gull in interior Alaska, British Columbia, and the Yukon. The Glaucous-winged Gull is morphologically similar to the Herring Gull except that the black pigment on the tips of the primaries is replaced by a light grey that matches the rest of the mantle. Conversely, the iris of the Glaucous-winged Gull is darker than that of the Herring Gull. These two gulls are considered separate species in the A.O.U. Checklist of North American Birds (1957), but the ecological and taxonomic relationships between the two species have not been clearly defined. In some areas hybrids are common.

Rand (1948) suggests several populations of gulls may have been separated during Pleistocene glaciation. While these gulls may have shared a common gene pool at one time, enough evolution has occurred to account for certain observed morphological differences, e.g., the amount of melanin in the mantle plumage, primary feather pigmentation, iris and orbital ring color. The gulls are now expanding their ranges from Pleistocene "refuges" and where populations are in contact, hybridization occurs.

Williamson and Peyton (1963) collected a series of specimens intermediate in plumage characters between the Herring Gull and the Glaucous-winged Gull from the Cook Inlet region near Anchorage, Alaska. They suggested that sympatry between breeding Herring and Glaucous-winged Gulls occurs in southeastern Alaska. This paper will present interim results of research on sympatry and interbreeding of Herring and Glaucous-winged Gulls in south-central and southeastern Alaska, and will be illustrated with slides of mixed pairs, nesting habitat selection, and collected specimens.

Glacier Bay is recently deglaciated (less than 200 years). Gene flow between previously isolated populations in this area must be as recent as the deglaciation. Herring and Glaucous-winged Gulls have been found nesting in at least three colonies in Glacier Bay. The colonies are found on (1) a near vertic cliff; (2) a flat low gravelly island; and (3) sloping grassy hillsides. During the summer of 1971, suspected intermediates were observed at a cliff colony. These gulls showed intergradation from one form to the other in primary feather pigmentation. During the following two summers, mixed, conspecific as well as "intermediate" to Glaucous-winged Gull pairs were observed on North Marble Island in a colony of 500 pairs. Relative numbers

of Herring Gulls were low. The mixed, apparent backcross and "pure" pairs successfully fledged young. Some individual birds proved impossible to categorize. Primary feather pigmentation varied in both amount and pattern. Iris color varied apparently independently of primary feather pigmentation.

Dry Bay, Tongass National Forest, 75 km south of Yakutat, contains 500 paris of argentatus and glaucescens nesting sympatrically on low gravel bars at the mouth of the Alsek River. Dry Bay has apparently never been glaciated but may have been the location of catastrophic flooding within the last 1000 years from glacially dammed lakes in the interior Yukon. The Alsek River is a known migration route connecting coastal with interior populations of vertebrates through the St. Elias Range (15,000 -19,000 ft.) Collections of specimens in June 1974 and 1975 revealed both Herring Gull and Glaucous-winged Gulls are considerably higher in Dry Bay than Glacier Bay.

Haenke Island lies off Yakutat in Disenchantment Bay and has about 200 pairs of Glaucous-winged Gulls nesting on a 100 m grassy cliff. The St. Elias Range and the Malaspina Glacier prevent influence of interior conditions in the area. The gull population is more limited in primary feather pigmentation than Dry Bay. Haenke Island is located near the active front of the Hubbard Glacier; vegetation is dominated by alders, indicating a relatively recent deglaciation. Specimens collected in June 1974 indicate possible introgression from Dry Bay.

Apparently the largest Larus glaucescens colony in the northeast Gulf of Alaska is located on Egg Island near the mouth of the Copper River near Cordova. About 10,000 -12,000 gulls nest on this relatively large but low sandbar island composed of meadow-covered dunes. Gull specimens collected in the summer of '75 show a limited range of variability. The large number of glaucescens may serve to "swamp" argentatus type genes. Very recent earthquake activity ('64) is important in determining the structure of the island and the plant communities upon which gulls nest.

N.G. Smith (1966) suggests there are insufficient isolating mechanisms between the Herring and Glaucous-winged Gulls. Field evidence from this study indicates that the Larus argentatus - Larus glaucescens species group is in an exceptionally fluid state evolutionarily, with populations at least partially isolated by glaciation and mountain ranges now interbreeding where in contact and producing a variety of morphological types in a rapidly changing environment. Study is continuing to establish the extent of variation in the Glaucous-winged Gull, in the intermediate populations, and to document the full extent of the sympatric zone in the Gulf of Alaska.

HYBRIDIZATION BETWEEN WESTERN AND GLAUCOUS WINGED GULLS: IMPLICATIONS FOR SPECIATION THEORY

Wayne Hoffman
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Oregon State University

Abstract: The extent and frequency of hybridization between Western (Larus occidentalis) and Glaucous-winged Gulls (Larus glaucescens) were studied on Destruction Island, Washington, in 1971-74 and were surveyed on the rest of the Washington and northern Oregon Coasts in 1975. Hybridization was regular and common over most of that range.

Analysis of 1974 nesting success on Destruction Island indicates that pairs including at least one intergrade laid more eggs and hatched a higher percentage of their eggs than pure Western or pure Glaucous-winged Gull pairs.

The patterns of mate choice at Destruction Island were analyzed with a hybrid index and also by a multivariate method using Manhatten distance. Both indicated that the mating patterns were strongly associative.

The results of the nesting success analysis indicate an evolutionary force tending to increase the rate of hybridization, and the mating pattern analysis indicates a force decreasing the rate of hybridization. This suggests that a dynamic equilibrium involving the maintenance of an intermediate hybridization may exist.

Present speciation theory does not recognize such a possibility. Preliminary results of a simulation of the system indicate that such an intermediate equilibrium exists.

COLONY TURNOVER AND HYBRIDIZATION IN SOME CANADIAN ARCTIC GULLS

Brian Knudsen
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Winnepeg, Manitoba

Abstract: Some data were collected in mid-June 1975 on the location and composition of 5 gull colonies in Home Bay, Baffin Island. In the 14 years since these colonies were last studied, at least 5 colonies apparently have been abandoned, 3 new colonies have been formed, and 1 colony has been reduced to 4 pairs.

Four collected gulls appear, on the basis of measurements, iris colours, and plumage patterns, to be hybrids between Larus thayeri and L. glaucoides. Mixed pairs of these two species were also seen.

Seven pairs of L. argentatus (1 specimen collected), a species formerly reported to nest only on level ground in this area, were nesting on a vertical cliff in the same colony with L. thayeri, L. glaucoides, and L. Hyperboreus.

ABNORMAL PAIRING IN WESTERN GULLS

George L. Hunt Jr. and Molly W. Hunt
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Abstract: During the breeding seasons of 1972-1975 approximately 10-15% of Western Gull (Larus occidentalis) nests on Santa Barbara Island, California, contained four, five or six eggs, up to double the normal clutch size. The supernormal clutches are attributed to pairs in which both individuals are female and both lay eggs. Of 12 pairs and 10 individual birds trapped incubating supernormal clutches and sexed by laparotomy or dissection, all but one bird were female. Fertility was very low in these clutches, the eggs were smaller than those produced by male-female pairs, and the laying sequence indicated that eggs must have been laid by two birds. Prior to egg laying, members of female-female pairs spent less time at the territory than male-female pairs, were less aggressive in territorial defense and were not observed to engage in courtship feeding or copulation with each other. Fertilization of a few eggs probably took place in "extramarital" matings.

Analyses of egg contents for pesticide residues indicated that levels of DDE and PCB's were not abnormally high and no differences were found in residue levels between normal and supernormal clutches. The reasons for the abnormal female-female pairing in Western Gulls are not presently known.

A DISCUSSION OF THE TAXONOMY AND EVOLUTION OF SOME DARK-BACKED GULLS OF THE GENUS LARUS

Ron LeValley
Biology Department,
Humbolt State University,
Arcata, California

Abstract: Recent investigations by myself and others have indicated that the Yellow-footed Western Gull (Larus occidentalis livens) of the Gulf of California may be more closely related to the Kelp Gull (L. dominicanus) of the southern hemisphere than to the Western Gull (L. occidentalis). This assumption has proposed some questions concerning the evolutionary relationships of these large dark-backed gulls with each other and with other large gulls of the genus Larus. As a result I have been examining the plumage sequences and distribution of the Greater Black-backed Gull (L. marinus) and the Lesser Black-backed Gull (L. fuscus) as well as the forms mentioned above.

Consideration of such factors as plumage sequence, size, distribution and general ecology has revealed that the Kelp Gull is not closely related to the Greater Black-backed Gull as has been suggested by some authors. Based on these considerations, a discussion of the evolutionary relationships of these dark-backed gulls should be instructive.

MORPHOLOGICAL VARIATION, SPECIES LIMITS, AND EVOLUTION IN THE MURRELET GENUS ENDOMYCHURA

Joseph R. Jehl, Jr. and Suzanne I. Bond
Natural History Museum,
San Diego, California

Abstract: Species limits in Endomychura have been a matter of dispute. Recent field studies in Baja California have shown that the probable breeding ranges of two of the three currently recognized taxa are more extensive than has been realized, and that all three taxa occur on the San Benito Islands during the nesting season. Morphological data indicate that Craveri's Murrelet (E. craveri) is acting as a distinct species with respect to both forms of Xantus' Murrelet (E. hypoleuca). Endomychura h. hypleuca and E. h. scrippsi are exceptionally well-marked forms and differ significantly in size and plumage characters. They apparently hybridize on the San Benitos, but the limited data suggest that interbreeding is not random, that gene flow between the two is reduced. Possible isolating mechanisms are discussed. Trends in body size in this genus are clinal, and the Ancient Murrelet (Synthliboramphus antiquus), which is closely related to Endomychura, also fits into the general picture of morphological variation.

THE BREEDING BIOLOGY OF THE XANTUS MURRELET

Aoe Eppley, Doug Schwartz, Sandy Anthony and George L. Hunt
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University of California, Irvine

Abstract: During the spring of 1975, the breeding biology of the Xantus Murrelet (Endomychura hypoleuca) was studied on Santa Barbara Island, California. Fifty-four Xantus Murrelet nests were observed from 18 April until they were vacated. Habitats selected for nests were recorded and the distance of nests from the water measured. Observations of parent-chick interactions were made on one nest for 18 hours. Nine nests were observed at night to document chick departures. Hatching success in 33 nests was 54% and of 29 chicks hatched, 100% were believed to have successfully left the island. Mouse predation on Xantus Murrelet eggs was found to significantly reduce the number of young produced.

THE FOSSIL RECORD AND ALCID EVOLUTION

G. Victor Morejohn
Moss Landing Marine Laboratories,
Moss Landing, California

Abstract: The western north Pacific coastal region apparently has been the area of origin of many of the species of Alcidae. Few of the living taxa of the north Pacific and north Atlantic regions have fossil representatives earlier than Pleistocene. Several alcid species became extinct prior to Pleistocene times, notably the flightless Lucas auks (Mancalla spp.) of the Pliocene that had evolved from late miocene ancestors (Premancalla). Recent discoveries in Santa Cruz reveal two species of southern California Pliocene Lucas auks, a rhinocerus auklet (Cerorhinca), and a new larger species of late Miocene Premancalla. Based on present distribution of living alcids and site localities of known fossils of the north Pacific and north Atlantic coastal regions, a tentative phylogeny of alcids is presented.

IV. General Papers Session; Paul R. Kelly, Chairman;
2:45 - 5:45 p.m., 13 December

SEX ROLES, SOCIAL STRUCTURE AND THE ROLE OF ENVIRONMENT IN THE WESTERN GULL

Raymond Pierotti
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California State University, Sacramento

Abstract: The evolution of social strucutres and the selective forces favoring those structures have long been the source of controversy and the subject of considerable research. Recently there have been some noble efforts to place the evolution of sociality in a theoretical framework (Trivers 1972, Alexander 1974). These models, though elegant in formulation, have not been adequately tested in the field.

It was decided, therefore to test these theories by comparing separate breeding colonies of the Western Gull (Larus occidentalis). Time and energy budgets were taken for male and female gulls to evaluate their respective roles in parental care. These in turn were compared with various environmental parameters that might effect social behavior such as food supply, predation, and available space for nesting. Finally the social systems observed in the different colonies were evaluated in terms of the models of Trivers and Alexander.

COMPARISON OF VOCAL DIFFERENCES IN THE LONG CALL OF SELECTED POPULATIONS OF EASTERN PACIFIC GULLS (L. OCCIDENTALIS, L. DOMINICANUS, L. GLAUCESCENS)

Judith Latta Hand
Biology Department,
University of California, Los Angeles

Abstract: There is evidence that male passerines respond selectively to the vocalization (songs) of males of their own species. There is accumulating indirect evidence that female passerines are equally discriminating and that female choice based on recognition of conspecific song is a mechanism of species isolation. M.P. Harris (1970) felt that his data from a study in which mating choices of cross fostered young of L. argentatus and L. fuscus were recorded, are best explained by a mechanism based on female choice, presumably determined by imprinting on key features during early stages in the nest. R.G.B. Brown (1967), in a study of these same two species, concluded that mantle color was used as a species-distinguishing feature by females, but also left open the possibility that females might distinguish species on the basis of vocal differences in the Long Call as well.

Sonograms of the Long Call notes of Larus occidentalis occidentalis (S.E. Farallon Island), L. occidentalis wymani (Catalina Island), L. occidentalis livens (Gulf of California), L. glaucescens (Mandarte Island, B.C.) and L. dominicanus (Chile) were made. Only two populations, that of L. o. occidentalis and L. o. wymani show any close similarities. The voice of L. o. livens is as different from wymani and occidentalis as either of those two populations are from L. glaucescens or L. dominicanus.

This marked difference in voice of L. o. livens from both L. o. wymani and L. o. occidentalis is a trait which strongly distinguishes the former populations from the latter, and suggests the possibility that the vocalizations may serve as an isolating mechanism.

OCCURRENCE AND MIGRATION OF THE LONG-TAILED JAEGER IN NORTH AMERICA

Philip Unitt
San Diego, California

Abstract: A study was made of the distribution of the Long-tailed Jaeger (Stercorarius longicaudus) in North America away from its breeding grounds involving an analysis of the records in the literature. The evidence suggests the existence of an overland migration route at high altitudes in both spring and fall. Most spring records are interior; there is very little spring migration on the Pacific coast from California to British Columbia. In fall, migration takes place both through much of the interior and offshore along the Pacific and Atlantic coasts. There is no unequivocal evidence for winter occurrence in or near North America.

BREEDING BIOLOGY OF THE CALIFORNIA LEAST TERN

Barbara W. Massey
Long Beach, California

Abstract: The California Least Tern (Sterna albifrons browni Mearns) beeds on beaches and saltflats close to estuaries in southern California and Baja California, Mexico. Severe loss of habitat has reduced the subspecies to approximately 600 breeding pairs in the United States. It was placed on the endangered species list in 1970.

The breeding biology and behavior of the California Least Tern were studied for several nesting seasons in Orange County colonies. The demography of a nesting colony was documented, including number of nests, clutch size, weights and measurements of eggs. Courtship displays, nest-making, egg-laying, incubation, hatching, growth and development of chicks, first flights of chicks, and vocalizations of adults and chicks were all studied. Banding of newly hatched chicks was an essential part of the program. Data gathered in this study have been valuable in subsequent efforts to protect the California Least Tern as a breeding bird in the United States.

EVIDENCE OF SURVIVAL TO RECENT TIMES OF THE EXTINCT FLIGHTLESS DUCK, CHENDYTES LAWI

G. Victor Morejohn
Moss Landing Marine Laboratories
Moss Landing, California

Abstract: Skeletal remains of the extinct Pleistocene diving duck, Chendytes lawi, were discovered at two northern California Indian midden sites. This bird was known to live on the Channel Islands off southern California to at least 33,000 years ago. Carbon 14 dates of midden shell and aspartic acid racemization of the Chendytes bones showed that this species lived into the Holocene and became extinct

sometime after 3780 years ago. The remains of Chendytes lawi bones from these northern California middens and a newly discovered Pleistocene tibiotarsus from the Port Orford Formation (lower Pleistocene) of Oregon extend the known range of Chendytes lawi from the Channel Islands off southern California northward some 450 miles. The high frequency of occurrence of bones of this species at one Indian midden clearly implicates early California aboriginal man as playing an important role in its extinction.

SOME PRELIMINARY FINDINGS IN THE ANALYSIS OF BIRD BONES FROM SELECTED CALIFORNIA INDIAN MIDDENS

Diana G. Matthiesen
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San Jose State University, San Jose California

Abstract: Analysis of non-human vertebrate remains from Indian habitation sites has been a somewhat neglected aspect of the study of prehistory. In this age of increasing environmental awareness, the value of these remains for reavealing geologically recent environmental change is becoming rapidly evident. With this in mind, bird, as well as fish, mammal, and molluscan remains, from a number of sites are currently being studied.

Presented here are the results of work done on avian remains at the Laguna Creek Indian midden (SCr-7) on the central California coast. The site is described in terms of its geological history, probable mode of formation, past and present avian assemblages, and importance. Some inferences are drawn as to dietary preferences and possible hunting techniques from the kind and condition of the remains.

Notable findings include the abundant remains of the now extinct flightless scoter, Chendytes lawi, the nearly extinct Short-tailed Albatross, Diomedia albatrus, and the endangered Clapper Rail, Rallus longirostris. The Laguna Creek remains are then compared temporally and ecologically with those of six other California middens.

It is clear from these comparisons that major environmental changes have occurred in some of these areas. Most of these changes are not surprising, and the causes for them are obvious; but other present an enigma to the researcher and call for more intensive investigation on a broad interdisciplinary front.

THE COLONIAL BIRD REGISTER

Donald A. McCrimmon
Cornell Laboratory of Ornithology, Ithaca, New York

Abstract: Throughout North and Central America and the Caribbean, more than 70 species of birds nest in colonies. Colonial birds are heavily dependent on a variety of wetland habitats that are extremely important to man and under considerable pressure for development. Numerous agencies and individuals have long been interested in monitoring and protecting colonially nesting birds, but before the establishment of the Colonial Bird Register the information collected was not centralized for convenient access and effective use.

The National Audubon Society and the Cornell Laboratory of Ornithology organized the Colonial Bird Register to establish a computerized data base for the collection and dissemination of information concerning colonial birds. Individual and agencies working with colonially nesting species are asked to contribute to the success of the program by submitting, to the Register, field survey forms detailing the location of colonies, their sizes, species composition, habitat, disturbance factors, and other information.

BREEDING AVIFAUNA OF THE BARREN ISLANDS, ALASKA

Edgar Bailey
U.S. Fish and Wildlife Service,
Anchorage, Alaska

Abstract: The Barren Islands, located at the entrance of Cook Inlet 180 miles southwest of Anchorage, were visited in July 1974 and 1975. All seven islands were surveyed by both boat and at least partly afoot during the 3 weeks in the islands.

The main purpose of the survey was to determine species composition, distribution, and abundance of mammals of the islands, a proposed National Wildlife Refuge.

A total of 55 species of birds, including an estimated minimum of 500,000 nesting seabirds, was recorded among the island which comprise 10,000 acres of land. Tufted (Lunda cirrhata) and Horned Puffin (Fratercula corniculata), Common Murre (Uria aalge), Black-legged Kittiwake (Rissa tridactula), Glaucous-winged Gull (Larus glaucescens), Forked-tailed storm Petrel (Oceanodroma furcata), Parakeet Auklet (Cyclorrhynchus psittacula), and Red-faced Cormorant (Phalacrocorax urile), were the most common nesters. Sooty Shearwaters (Puffinus griseus) and Northern Phalaropes (Lobipes lobatus) were abundant well offshore.

Greatest seabird numbers exist on East Amatuli Island where a small Northern Fulmar (Fulmarus glacialis) colony also was found and where Kittlitz's Murrelet (Brachyramphus brevirostre) apparently nests. Approximately 500 pairs of Rhinoceros Auklets (Cerorchinca monocerata), the only colony described outside of Southeast Alaska, were discovered on Sud Island. Introduced foxes evidently have reduced bird populations on Ushagat Island, the largest of the Barrens.

THE BIRDS OF BOGOSLOF ISLAND: A RECENTLY ACTIVE VOLCANO

C. V. BYRD
U.S. Fish and Wildlife Service, Adak, Alaska

G. J. Divoky
Alaska Dept. of Fish and Game,
Fairbanks, Alaska

Abstract: Bogoslof Island, located in the southeast Bering Sea, is a recently active volcano that first rose from the sea in 1796. Visits to the island have been frequent enough to ascertain approximate dates of colonization and estimates of numbers of breeding birds. A visit in 1973 showed 15 species of birds nesting on the island.

Thick-billed Murres (Uria Lomvia) colonized the island soon after its appearance and were much more abundant 50 years ago than now because erosion of cliffs has decreased nesting space. Pigeon Guillemotes (Cepphus columba) were abundant in the early 1800's but the erosion of the boulder beaches they used for nest sites has reduced the population to one or two pairs.

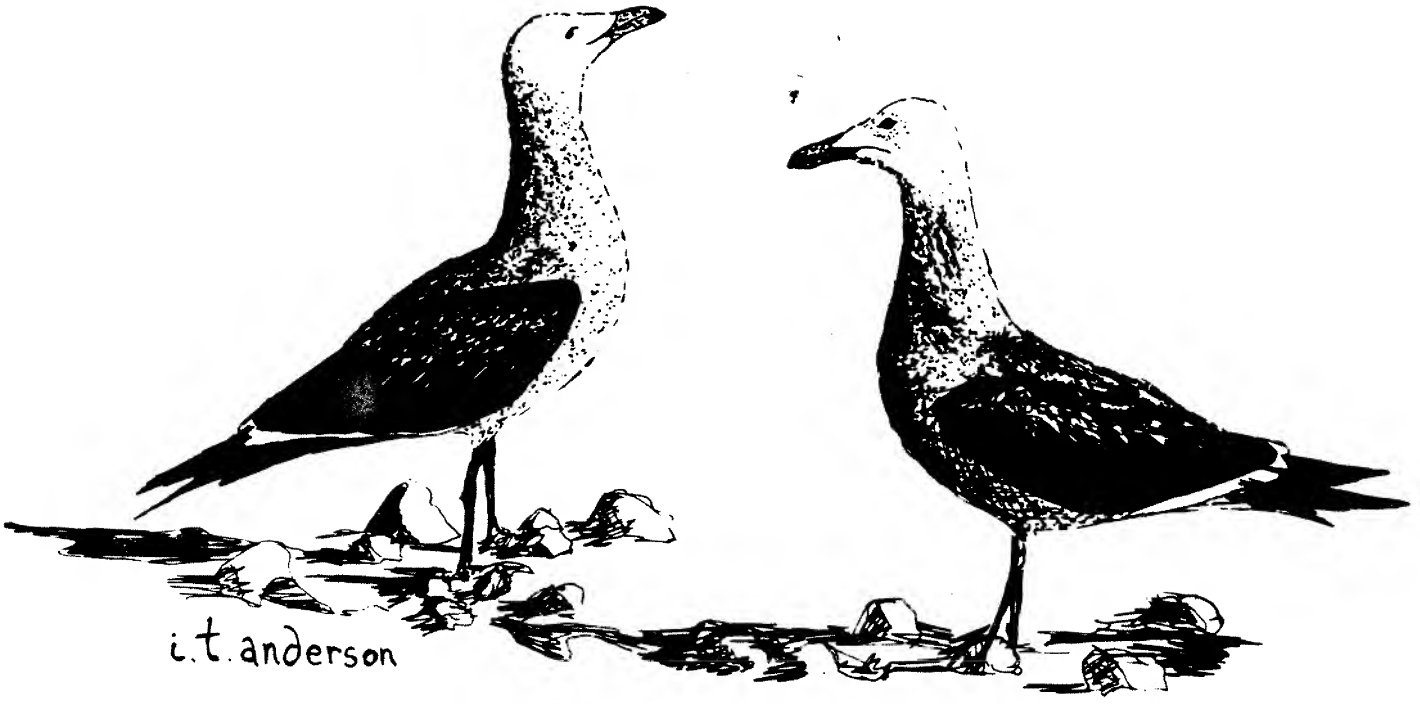
From the 1930's to the present time vegetation has covered much of the island and by providing nesting material has resulted in an increase of Glaucous-winged Gulls (Larus glaucescens). Stabilization of soil by vegetation has provided burrowing habitat for Fork-tailed Storm-Petrels (Oceanodroma furcata) and Tufted Puffins (Lunda cirrhata), both of which have increased greatly in the past 30 years. Red-legged Kittiwakes (Rissa brevirostris) were not known to nest on the island before 1973 when approximately 100 pairs were found. Colonization of the island by other seabirds is discussed.

SEABIRD SURVEYS ON MONTEREY BAY, OCTOBER 1973 TO THE PRESENT

Robert Gill and Bruce Elliot
Wildlife Management Branch,
California Department of Fish and Game

Abstract: Between 17 October and the present, biologists from the State of California's Moss Landing Marine Lab and the Department of Fish and Game have conducted on-going cooperative seabird surveys on Monterey Bay. Fifteen regular 30-mile transects, plus eleven supplementary trips covering a portion or portions of the former route, and totaling over 800 cruise miles and approximately 156 hours of observation time have permitted observations of seabird migration patterns, feeding assemblages, and wintering distribution patterns on waters over and around the Monterey Submarine Canyon. Records spanned every month of the year, but emphasized late autumn, winter and early spring, those portions of the year for which seabird data in this area is particularly scarce. Data on water depth, temperature and local weather were gathered for correlation with observational data and food habit information gathered from specimen. General patterns of distribution and abundance are outlined and summarized, indicating that patterns of distribution even in this limited area are more complex than originally suspected and not firmly related to local weather factors or other factors analyzed to date.

Magnificent Frigatebird



Heermann's Gulls

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The sketches found in this issue were drawn by Irene Trautt Anderson, and they represent some of the commonly found seabirds of marine habitats in the Gulf of California.

D. W. A.
30 July 1976

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DEDICATED TO THE STUDY AND CONSERVATION OF PACIFIC SEABIRDS AND THEIR ENVIRONMENT

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